Application No. Applicant(s) Index of Claims 10/825,461 MURPHY ET AL. Examiner Art Unit Seth Barney 3752 (Through numeral) Rejected Non-Elected **Appeal** Cancelled Α 0 Allowed Restricted Interference Objected Claim Claim Date Date Claim

| Final                                            | Original | 4/8/05       |                |          |          |          |          |                 |          |          |     | Final             | Original |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |          |          |                        |          |          |          |            |      | Final | Original |          |          |    |          |          |          |          |           |          |
|--------------------------------------------------|----------|--------------|----------------|----------|----------|----------|----------|-----------------|----------|----------|-----|-------------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------|------------------------|----------|----------|----------|------------|------|-------|----------|----------|----------|----|----------|----------|----------|----------|-----------|----------|
|                                                  | 1        | 1            |                |          |          | Π        | Г        |                 |          |          |     |                   | 51       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |          |          |                        |          |          | $\neg$   |            | ı    |       | 101      | ヿ        |          |    | П        |          |          | $\neg$   | $\neg$    | $\dashv$ |
|                                                  | 2        |              |                |          | - 37     | ,        |          |                 |          |          |     |                   | 52       | Π                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | П        |          |          |                        |          |          |          | $\neg$     | - [  |       | 102      |          |          |    |          |          |          | $\neg$   | $\neg$    | ヿ        |
|                                                  | 3        |              |                |          |          |          |          |                 |          |          | 1   |                   | 53       | Γ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | П        |          |          |                        |          |          | T        |            | ſ    |       | 103      |          |          |    |          |          |          | $\neg$   | 寸         | ヿ        |
|                                                  | 4        |              |                |          |          |          |          |                 |          |          |     |                   | 54       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |          |          |                        |          | ヿ        | 丁        |            | Ì    |       | 104      | $\neg$   |          |    | П        |          |          | T        | ╅         | $\neg$   |
|                                                  | 5        |              |                |          |          |          |          |                 |          |          | ] [ |                   | 55       | П                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | П        |          |          |                        | コ        | $\neg$   | $\neg$   |            | Ì    |       | 105      |          |          |    |          |          |          | $\neg$   | $\exists$ | $\neg$   |
|                                                  | 6        |              |                |          |          |          |          |                 |          |          |     |                   | 56       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |          |          |                        |          |          |          | $\neg$     | Γ    |       | 106      | $\neg$   |          |    |          |          |          | T        | $\neg$    | 7        |
|                                                  | 7        |              |                |          |          |          |          |                 |          |          |     |                   | 57       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |          |          |                        |          |          |          |            | ſ    |       | 107      | 目        |          |    | П        |          |          |          | $\exists$ | $\neg$   |
|                                                  | 8        | L            |                |          |          |          |          |                 |          |          |     |                   | 58       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |          |          |                        |          |          |          |            |      |       | 108      |          |          |    |          |          |          | $\neg$   | ヿ         | ヿ        |
|                                                  | 9        |              |                |          |          |          |          |                 |          |          |     |                   | 59       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |          |          |                        |          |          |          |            |      |       | 109      |          |          |    |          |          |          |          | $\neg$    |          |
|                                                  | 10       |              |                |          |          | Ш        |          |                 |          |          |     |                   | 60       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |          |          |                        |          |          |          |            | [    |       | 110      |          |          |    |          |          |          |          | $\Box$    |          |
|                                                  | 11       |              |                |          |          |          |          | Ш               |          |          |     |                   | 61       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |          |          |                        |          |          |          |            |      |       | 111      |          |          |    |          |          |          |          | $\Box$    |          |
|                                                  | 12       |              |                |          |          |          | _        |                 |          |          |     |                   | 62       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Ш        |          |          |                        |          |          |          | _].        | [    |       | 112      |          |          |    |          |          |          |          | $\Box$    |          |
|                                                  | 13       | _            |                |          |          |          |          |                 |          |          |     |                   | 63       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Ш        |          |          |                        |          |          | $\Box$   |            |      |       | 113      |          |          |    |          |          |          |          |           |          |
|                                                  | 14       |              |                |          |          |          |          |                 |          |          |     |                   | 64       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |          |          |                        |          |          |          |            |      |       | 114      |          |          |    |          |          |          |          |           |          |
|                                                  | 15       |              |                |          |          |          |          |                 |          |          |     |                   | 65       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |          |          |                        |          |          | $\perp$  |            | [    |       | 115      |          |          |    |          |          |          |          |           |          |
| $\perp$                                          | 16       |              |                |          |          |          |          |                 |          |          |     |                   | 66       | L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Ш        |          |          |                        |          |          |          |            | L    |       | 116      | l        |          |    |          |          |          |          |           |          |
|                                                  | 17       |              |                |          |          |          |          |                 |          |          |     |                   | 67       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Ш        |          |          |                        |          |          |          |            |      |       | 117      |          |          |    |          |          |          |          | $\Box$    |          |
|                                                  | 18       |              | Щ              |          |          |          |          |                 |          |          |     |                   | 68       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Ш        |          |          |                        |          |          |          |            |      |       | 118      |          |          |    |          |          |          |          | $\Box$    |          |
|                                                  | 19       | ·            | Щ              |          |          |          |          |                 |          |          |     |                   | 69       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Ш        |          |          | _                      |          |          |          |            | L    |       | 119      |          |          |    |          |          |          |          |           |          |
|                                                  | 20       |              | Ц              |          |          |          |          |                 |          |          |     |                   | 70       | $ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ldsymbol{ld}}}}}}$ | Ш        |          |          |                        |          | $\perp$  |          |            | L    |       | 120      |          |          |    |          |          |          |          |           |          |
|                                                  | 21       |              |                |          |          |          |          |                 |          |          |     |                   | 71       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |          |          |                        | $\perp$  |          |          |            |      |       | 121      |          |          |    |          |          |          |          | $\Box$    |          |
|                                                  | 22       |              |                |          |          |          |          | Ш               |          |          | -   |                   | 72       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Ш        |          |          |                        | $ \bot $ | $\perp$  |          | ╝          | L    |       | 122      |          |          |    |          |          |          |          |           |          |
| $\vdash$                                         | 23       |              |                |          |          |          |          | Ш               |          |          |     |                   | 73       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Ш        | _        |          | _                      |          | _        | $\perp$  | _          |      |       | 123      |          |          |    |          |          |          |          |           |          |
| $\vdash$                                         | 24       |              |                | _        |          |          |          |                 |          |          |     |                   | 74       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | L.       |          |          |                        | _        | _        | $\perp$  |            | L    |       | 124      | $\Box$   |          |    |          |          |          |          |           |          |
| $\vdash$                                         | 25       |              | -              | _        |          | _        |          | Ш               |          |          |     |                   | 75       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |          |          |                        | _        | _        |          | _          | Ļ    |       | 125      |          |          |    |          |          |          | $\Box$   |           |          |
|                                                  | 26       |              |                |          | _        | Ш        |          | Ш               | _        |          |     |                   | 76       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |          |          | ᆜ                      | 4        | 4        |          | _          |      |       | 126      | $\Box$   | _        |    |          | _        | $\perp$  |          |           | _        |
| $\vdash$                                         | 27       |              | $\Box$         |          | _        |          | Щ        | Ш               | _        |          | "   |                   | 77       | Ш                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Ц        | _        | _        | _                      | _        | 4        | _        | _          | L    |       | 127      |          |          |    |          | _        |          |          | $\perp$   |          |
| -                                                | 28       |              | $\blacksquare$ |          | _        |          |          |                 |          |          |     |                   | 78       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | $\Box$   | _        |          | _                      | 4        | 4        | _        | _          | L    |       | 128      | $\perp$  | _        |    | Ц        | _        |          | _        | $\perp$   | _        |
| -                                                | 29       |              | -              | -        |          | _        |          | $\square$       | _        | _        |     |                   | 79       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          | _        |          | _                      | 4        | $\dashv$ | _        | 4          | Ļ    |       | 129      | _        | $\perp$  | _  |          | _        |          | $\dashv$ | _         | _        |
| $\vdash$                                         | 30       |              |                | -        | Н        | _        | _        |                 | _        |          |     |                   | 80       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          | _        | _        | _                      | 4        | _        | 4        | _          | L    |       | 130      |          | _        | _  | _        | _        | _        | _        | $\dashv$  |          |
| <del>   </del>                                   | 31       |              |                | $\dashv$ | $\dashv$ | _        | _        | $\vdash$        |          | _        |     | $\longrightarrow$ | 81       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Н        | _        | _        |                        | 4        | $\dashv$ | 4        | 4          | Ļ    |       | 131      | 4        | _        | _  | _        | _        | _        | _        | 4         | _        |
| $\vdash$                                         | 32       |              | _              |          |          |          | _        | -               |          | _        |     |                   | 82       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | $\dashv$ | _        | _        | 4                      | -        | $\dashv$ | 4        | 4          | ļ    |       | 132      | _        | _        | _  | _        | _        | 4        | _        | 4         | _        |
| $\vdash$                                         | 33       | $\dashv$     | -              | $\dashv$ |          | $\dashv$ |          | Н               |          | _        |     |                   | 83       | Н                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | $\dashv$ |          | ᅴ        | 4                      | 4        | $\dashv$ | 4        | 4          | ļ    |       | 133      | 4        | _        | _  |          | 4        | 4        |          | 4         | _        |
| <del>                                     </del> | 34<br>35 | -            | $\dashv$       | $\dashv$ | _        | $\dashv$ |          |                 |          | _        |     |                   | 84       | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          | _        | -        | _                      | _        | _        | +        | 4          | ٠,   |       | 134      |          | _        | _  | $\Box$   | _        | _        | _        | 4         | _        |
| $\vdash$                                         | 36       | -            | $\dashv$       | $\dashv$ |          | -        | $\dashv$ | $\vdash \vdash$ |          | _        |     |                   | 85       | _                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | $\dashv$ | -        |          |                        | 4        | -        | -        | <b>–</b> [ | 1    |       | 135      | _        | _        | _  | _        | _        | _        | _        | 4         | _        |
| <b></b>                                          | 37       | -            |                |          |          | $\dashv$ |          |                 | $\dashv$ | _        | ŀ   |                   | 86       | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | $\dashv$ |          | $\dashv$ |                        | -        | _        | 4        | 4          | ŀ    |       | 136      | _        | _        |    | _        | _        | _        | $\dashv$ | 4         | _        |
| -                                                | 38       | $\dashv$     | ᅱ              |          | $\dashv$ |          | _        | $\dashv$        |          |          | .   |                   | 87       | _                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          | $\dashv$ |          | -                      |          | -        | -        | 4          | -    |       | 137      | _        | _        | _  | _        | _        |          | 4        | 4         | _        |
| -                                                | 39       | $\dashv$     | -              |          |          | $\dashv$ | -        | $\dashv$        | -        | -        |     |                   | 88       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | -        |          | $\dashv$ | -                      | $\dashv$ | $\dashv$ | -        | 4          | ŀ    | -     | 138      |          | -        |    | _        | _        | 4        | _        | 4         | _        |
|                                                  | 40       |              | $\dashv$       | $\dashv$ | -        |          | $\dashv$ |                 | -        | $\dashv$ | -   |                   | 89       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | -        |          | -        | $\dashv$               | -        |          | 4        | -4,        | -  - |       | 139      | -        |          | _  |          | _        | _        | _        | 4         | _        |
| $\vdash$                                         | 41       | $\dashv$     | -              |          | -        |          | $\dashv$ | -               |          | 4        | ŀ   |                   | 90       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | $\dashv$ |          | $\dashv$ | $\dashv$               | 4        | -        |          | 4          | 1    |       | 140      | -        | $\dashv$ | _  | _        | _        | _        | 4        | 4         | 4        |
| $\vdash$                                         | 42       | $\dashv$     |                | -        |          |          | -        | $\vdash$        |          | ᅴ        | }   |                   | 91       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | $\dashv$ | ᅱ        | $\dashv$ | $\dashv$               | -        |          | +        |            | -    |       | 141      | -4       | _        | _  | _        |          |          | _        | 4         | _        |
| -                                                | 43       | $\dashv$     | $\dashv$       |          |          | $\dashv$ |          |                 | $\dashv$ | -        | .,  |                   | 92       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          | -        |          | -                      |          | $\dashv$ | $\dashv$ | -          | -    |       | 142      | _        |          | _  | _        | _        | $\dashv$ |          | _         | 4        |
| -                                                | 44       | $\dashv$     |                | $\dashv$ |          | $\dashv$ | $\dashv$ | -               | $\dashv$ | $\dashv$ |     |                   | 93<br>94 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          | -        | -4       |                        | -        | $\dashv$ | +        |            | -    |       | 143      | -1       | -        |    | _        | -        | 4        |          | $\dashv$  | _        |
| $\vdash$                                         | 45       |              | $\dashv$       | $\dashv$ | $\dashv$ | $\dashv$ |          | $\dashv$        |          | $\dashv$ |     |                   | 95       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | $\dashv$ |          | -        | -                      | -+       | -        | +        | $\dashv$   | }    |       | 144      | -        |          | _  |          |          | _        | $\dashv$ | 4         | $\dashv$ |
| <del>  -  </del>                                 | 46       | $\dashv$     |                | $\dashv$ |          | $\dashv$ |          |                 | $\dashv$ | $\dashv$ |     |                   | 96       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |          |          |                        | $\dashv$ | +        | +        | 4          | ŀ    |       | 145      | $\dashv$ | $\dashv$ |    | -        | _        |          |          | $\dashv$  | $\dashv$ |
| $\vdash$                                         | 47       | -+           | -              |          |          | $\dashv$ |          |                 | $\dashv$ |          | }   |                   | 96       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | $\dashv$ | $\dashv$ | $\dashv$ | -                      | $\dashv$ | +        | +        | ┨.         |      |       | 146      | -        | -        | -  |          | 4        |          | -        | 4         | $\dashv$ |
| $\vdash$                                         | 48       | <del>-</del> | -              | $\dashv$ | $\dashv$ | -        | $\dashv$ | -               |          |          | . } |                   | 98       | $\dashv$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | -+       | $\dashv$ | -        | $\dashv$               | $\dashv$ | -+       | +        | $\dashv$   | -    |       | 147      |          | $\dashv$ | -  | $\dashv$ |          |          | 4        | -         |          |
| $\vdash$                                         | 49       |              | -              | -        |          | $\dashv$ | $\dashv$ |                 | $\dashv$ | $\dashv$ | }   | -                 | 99       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | $\dashv$ | $\dashv$ | -        | $\dashv$               | +        | $\dashv$ | +        | $\dashv$   | -    |       | 148      | -        |          | -  |          | $\dashv$ |          | -        | $\dashv$  | $\dashv$ |
| <del>     </del>                                 | 50       |              | +              | -+       | -        | $\dashv$ | $\dashv$ | $\dashv$        | $\dashv$ | ᅱ        | ŀ   |                   | 100      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | $\dashv$ | $\dashv$ | -        | $\dashv$               | +        | -        | +        | $\dashv$   | ŀ    |       | 149      | -        | $\dashv$ | -  |          | $\dashv$ |          | -        | -         | $\dashv$ |
| ш                                                | JU       |              |                |          |          |          |          |                 |          |          | · L |                   | 100      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | L        |          |          | $\perp \! \! \! \perp$ |          |          | _L       | ┙          | L    |       | 150      | 1        |          | _1 |          | _1       |          | $\perp$  |           |          |